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THE DESIGN OF LOW COST HOUSING IN RELATION TO LOCAL CONDITIONS

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THE DESIGN OF LOW-COST HOUSING IN RELATION TO LOCAL CONDITIONS

by

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1. The general outline of the problem facing the newly-developing countries has now been drawn. It is daily becoming more widely understood. Nevertheless there is one aspect of the problem that is in danger of being undervalued in its significance. It is the housing of their peoples.

2. The provision of housing and the promotion of social and economic development are inter-related problems of great complexity.

3. In physical terms we are attempting to replace settlement and occupational patterns which were largely the result of self-regulating local environments with patterns more appropriate to the needs of the newly evolving societies of today. Those at work in the field of housing and urbanisation seek new settlement patterns to replace the old.

4. The need to take our man-made landscape in hand has now become widely realised in the more industrialised countries. Few have seen the necessity of taking control of the physical landscape in the new countries. Yet here the need is just as great. In many ways the opportunity is far greater. In these areas the process of building, industrialisation and rationalisation of agriculture has hardly begun. An industrialised urban society requires buildings of all kinds. But 95% of the buildings in an urbanised landscape are houses. These houses, their character, location and grouping only become meaningful when conceived in relation to local conditions and to their wider regional setting.

The Housing Problem

5. Despite the ingenuity often displayed in the use of locally-found building materials the houses of the people of the less developed countries (taken as a whole) have seldom been very permanent or well built. Nevertheless whilst the lives of these peoples were centered mainly on villages the houses served the needs of their inhabitants fairly well.

6. The impact of the new world-wide industrial economy on the world of subsistence-economy villages has been great. Housing adequate enough perhaps in its way for the old patterns of life is now seen to be totally inadequate. Even more demoralising houses that were once located at the very hub of society are now being found by their occupants to be hundreds, perhaps thousands of miles from the new hub - the big city. More and more peoples in more and more countries are realising that not only are their homes wretched hovels but that they are no longer in the right place. They are gathering their scanty possessions together and moving in their hundreds of thousands to the fast-growing, newly-important expanding cities.

7. Populations are not only moving; they are growing rapidly. The total situation facing those concerned with housing in almost any newly-developing country is fluid in the extreme. An increase in total populations; changes in settlement patterns; changes in the size and character of families and of family life itself; the introduction of urban ways of life into hitherto subsistence communities; changes in the expectations of housing all add up to the need for national housing policies to be fully integrated into social and economic policy planning. And furthermore integrated into the carrying out of social and economic development plans on the ground.

The Aims of Housing Policy

8. These are simply stated: the right houses in the right places at the right time. These aims are less easily achieved. Each throws up a question of definition in respect of any local situation. In order to define clearly investigation is needed. Effective housing policies can only spring from having a clear understanding of the present position and of existing and potential trends. Even policies formed on a basis of survey knowledge will not remain relevant unless creative in form. Only a dynamic policy, constantly under review can remain relevant. If a true weighting of housing with social and economic programming is to be obtained it will be necessary that it be made the responsibility of a Minister of cabinet rank. In a small country such a Minister might also hold the portfolios of physical and town planning and/or social development.

9. The housing problem of a developing country is but one aspect of the general problem of poverty and low-income levels. Where there are so many calls upon the national budget it is clear that whatever policy is formulated there will never be enough money available in any country for Governments to provide all the houses required. Nor can governments be expected to take on house construction for the whole of its population. However a government is responsible for the creation of a social, technical and financial climate in which all aspects of the housing problem have a chance of being tackled efficiently.

10. A government can survey, analyse, weigh and state the nature of national and regional problems. It can show private investors, house financing agencies, building societies and large contracting firms how best they can enter the field. It can also take steps to encourage those wishing to build for themselves by establishing standards, underwriting mortgage guarantees and offering guidance in matters of physical planning.

11. A government can also help in a more direct way by offering technical advice; by gathering the results of research and experiences elsewhere; by undertaking research and development work where necessary and by erecting demonstration houses to show what is possible within certain specified budget ranges.

12. Within this broad setting a government can then select certain specific objectives to tackle itself such as economic urban housing; certain forms of subsidised urban housing; houses related to agricultural developments, to regional and community development projects and to slum clearance.

13. It is a widely held view that one of the principal aims of housing policy should be the encouragement of home ownership. As a long-term aim one would not wish to dissent from this. But rental housing will be necessary and on a large scale in urban areas in the new countries for a long time to come.

14. Without land to build upon no housing programmes can be carried out. Yet little consideration has been given in some countries to the framing of sound urban land policies. In many countries new housing projects have been placed on the edge of present urban areas or even right outside towns altogether. The worst of both worlds is thus offered to the occupants: they neither exist in a self-contained village community nor are they of the town. In rural areas there is even more frequently no building land policy and houses are just scattered over the countryside. This increases the demand for road improvement, piped water supplies and electricity and poses these problems in such a form that they can never be provided for all in need.

15. Government housing policy is most effectively executed through the medium of a central housing department or authority. This authority may be empowered to delegate housing powers to regional and local authorities providing they are capable of acting on and maintaining the authority's own standards. In delegating powers to local agencies experience seems to show that it is wiser to delegate powers to existing bodies (strengthened and improved as necessary) rather than to set up new organisations.

16. Today even in quite small newly-developing countries social housing does not come under one central authority. There are many countries where housing has been over administered, and where economies should certainly accrue from the bringing of all housing activities under the directing umbrella of one department. In countries desperately short of technical and financial resources there can be little justification for the duplication of effort resulting from numerous authorities working on housing standards, house designs, administration, contract organisation and field supervision.

Housing Standards

17. Improved housing starts from the establishment of housing standards. The importance of the responsible government Minister issuing appropriate standards for guidance and control cannot be stressed too highly. The range of standards required is wide and includes standards of occupancy in houses and rooms; ventilation and structural stability; housing densities related to urban and regional needs and conditions. The Minister will also need to consult with the Ministers responsible for framing physical planning policy and the preparation of building codes.

18. Because of the differing performance standards that are required for various physical, climatic and social conditions and because of the differences in the stages of growth between differing newly-developing countries, it is difficult to make comparative studies of space or health or structural standards; or of housing costs, even of neighbouring countries. What is apt and economic in one situation may well prove to be ridiculous and expensive in another.

19. Housing standards have always to be framed against an economic background either existing or anticipated. The cost of house construction will be an all important influence on the design of standards. The term "low-cost" housing is often used as if it were synonymous with social housing.

But to some extent the term "low-cost housing" is a rather misleading phrase. Housing can only be low-cost in relation to agreed standards laid down. It is the requirements of the Minister with his required standards that helps to determine the "low-cost" housing design problem quite as much as the people in need.

20. There is probably as great a need for balanced realism in the creation of housing standards as in any other aspect of housing in the new countries. If standards are set too high the new housing becomes too expensive for the mass need and fewer houses can be built for the money available. If standards are set too low then existing conditions are perpetuated. But if standards are not set at all then all concerned with housing provision are in a quandary. They have no measurable objective and no very exact way of assessing their successes and failures.(1)

21. Standards for housing fall into two main groups which are themselves interrelated: those standards which define the performance required of the building as a whole i.e. stability, resistance to earthquakes etc., and of building elements such as walls, and roofs and of building materials; and those standards which define requirements for health and comfort. The structural requirements of buildings are defined in local building codes (although in some countries not very clearly or usefully) and in general will be much the same in character as is required of a building in Europe or the United States. Both groups of standards, interrelate in that requirements for health and comfort are often of necessity defined in terms of constructions and materials used. It is desirable however that they be defined wherever possible in terms of the principles to be followed and the maximum or minimum condition permitted rather than by defining specific constructions. This permits designers to give full reign to their imaginations within the frame-work of the code.

Town Planning and Housing Density

22. Many a housing architect working in a newly-developing country finds himself having to work in a situation where there is no overall physical planning policy; no town planning policy and generally no framework at all into which housing work can be set. Unless related to some wider policy on the future pattern of human settlement the mere provision of houses alone will do little towards solving a country's national housing problem and certainly will not play a very creative part in its social and economic development plans.

23. The architect will most immediately feel the lack of guidance on density problems. Residential density is the measure of the intensity of land use in housing schemes. Densities will broadly be determined by regional, metro-politan and urban physical planning frameworks and, for any given site, by reconciling numerous factors against the planning background.(2)

(1) Atkinson G.A.A. Mass Housing in Rapidly Developing Areas, Town Planning Review 31 (2) July (1960).

(2) Stevens P.H.M., Densities in Housing Areas, Tropical building Studies, HMSO, U.K. (1960).

Designing for a way of life

24. In certain countries one room of even quite a small house may be set aside for a house god. In other countries one room may be reserved for the entertainment of male guests. In some countries beds are folded away during the day-time so releasing quite a lot of day-living space in an otherwise small dwelling. The designer of a "low-cost" house will need to have an accurate picture of the lives of the people for whom he is designing. This is often difficult to obtain.

25. Because of the interaction of social and community factors with each family unit's way of life there can be no solution to a country's mass housing problem in terms of "a low-cost house". A house, two houses, tens of thousands of houses are but elements in the total physical expression of the habitat of a whole community. What are the nature of our evolving communities? What are the housing needs of each group making up the total community?

26. Whilst the common forces at work will result in certain similarities in the broad housing needs and problems of developing countries the local situation in each country in terms of culture, political forms, stages of economic growth and environment must lead us to expect very different answers to these questions according to which people and of which country they are asked.

27. The extremely fluid situation that all these countries do have in common however points to one necessary common denominator in all their "ideal" housing solutions. Whilst the form of settlement pattern proposed should be clear and meaningful in its skeletal form it should also offer the maximum freedom of opportunity for change and growth. The significant element in community that a housing architect and urbanist will be concerned to express will be the character of its organisation. In the same way as a community is by definition a comprehensible thing so should be its physical expression. Comprehensible both in the whole and the parts.

28. In planning housing at regional, city, town or village scale the acceptance and necessity of allowing for change has to be seen as an integral part of the planning process. It will be quite impossible to define the physical form complete of a whole community (however small) for each part built effects the parts yet to be built. Later parts will be the result of responses and reaction to earlier ones and to the whole tenor of the times. Which in itself is ever-changing and cannot be pre-determined.(3)

29. Against this backcloth of the total environmental needs of a people we can begin to ask meaningful questions about the needs of any particular group of people. In each region and each country needs and customs will differ. In meeting the requirements of differing cultural patterns and family structures and physical and climatic influences a sympathetic designer can establish a feeling of identity between houses and region.(4)

(3) Smithson A. & P., Uppercase 3,
Whitefriar's Press, London (1960).

(4) Ahern R.F., Five False Formulas for Housing
Urban and Rural Planning Thought, Vol. IV, 3,
July (1961) New Delhi.

30. Not only do we ask of ourselves whether the house meets certain specified health and performance standards but does it through its form liberate families from old restrictions? Is useable out-door living space provided? Is there somewhere for the children to play? Is the house type proposed both in its form and in its linkages to adjacent housing units well related to the whole community concept and to the regional pattern?

Materials and Methods

31. One of the essentials of a good house designer is a knowledge of the basic principles governing the use of building materials and methods in his area. The main factors affecting his choice are: availability; the ability of local labour; previous experience with the material or method; contract methods; site location; cost, including local taxes and transport costs; availability and quality of supervision; the requirements of building codes and of building societies; appearance of the material after exposure to the elements; durability and general climatic conditions. The character and capability of the local building industry and the low income levels both in relation to the cost of building and absolutely will be the two main overiding influences upon his decision-taking.

32. The designer has a considerable influence on what is possible within the limitations of his particular area. Although perhaps some of the first design decisions regarding the use of materials and methods may not be his alone, how these elements are to be used is very much his responsibility. Upon his decisions and the character of his design work will depend economies in the bulk purchase of sized building elements and the ease of handling and fabrication of long production runs locally. Not only door and window production but cost comparison and cost planning become possible and within a design environment of modular planning, dimensional co-ordination and the standardisation of certain building elements to preferred dimensions within the co-ordination system.(5)

33. In no country in the world have governments and building industries working together been able to solve their national mass housing problem using present techniques. Even in the richest countries of the world, great proportions of the population cannot afford to buy their own homes. The cost of building and cost of borrowing money are both too high. If the ideal of every family its own house owner has been unobtainable in the developed countries how much the more so is this likely to be the case in the less developed. Radical thinking in the fields of house finance and in the technology of house construction will be required if the world housing problem is to be solved.

The High Cost of "Low-Cost" Houses

34. The crux of the housing problem lies in the cost of the provision of houses of an acceptable standard. And what is acceptable changes as each day passes and as the "revolution of rising expectations" gathers momentum. For the vast majority of the people of the newly-developing areas, houses designed and built even to the lowest minimum standards cost far more than they can afford to pay either in purchase instalments or rent. The basic problem is therefore the narrowing of the gap between the cost of providing housing and the amount those in need can afford to pay.

(5) Corker E. & Diprose A., Modular Co-ordination: A Modular Primer Architect's Journal, London August 1st. (1962).

There are two distinct ways of approaching this problem:

(a) by so ordering the economic climate that people are able to earn more and thus eventually be able to afford the housing they need or

(b) by reducing the cost of the housing provided.

The way forward is to pursue both courses in parallel. However the ordering of economic affairs is something over which those directly charged with housing responsibilities generally have little influence. For them the problem is essentially that of reducing the cost of the housing provided. This, however, against the background that there are standards (even where these are not defined governmentally) of construction, health and amenity below which it is both unwise and unsafe to fall.

36. Some people who have interested themselves in housing provision for the peoples of newly-developing areas have felt that the answer to the cost and production problem lay in the development of a "wonder" house. Some very ingenious ideas have been thrown up (6) which could radically effect emergency shelter programmes such as arise after a hurricane or earthquake. However it must be said that neither the general community housing problem or its solution can be stated in such simple terms. The cost of providing houses is made of many elements of which the materials and technology adopted are only two. Furthermore we are not primarily concerned to build houses as such but to house total communities.

37. Whilst housing costs are made up of numerous factors they can, from the point of view of a designer, be conveniently divided into two groups. That group which concerns him most intimately includes such factors as wages and the efficiency of labour; the cost of building materials; the choice of building contractor; building contract procedure; standards of site planning and questions of residential density; the costs of roads and services, house design and building material performance; the on-site and off-site constructional techniques available; the cost of transport; the location and character of building sites; the season of the year construction is to take place; the use of local as against imported material; the costs of maintenance and not least his own knowledge and design ability and that of his staff.

38. The other group of factors that enter into the build-up of costs, but over which the design team has little or no control, stem from the interest charges on borrowed capital; the cost of housing administration and management; the cost of land acquisition; legal fees; the scale and continuity of the building programme and the degree of freedom enjoyed by the housing executive from political interference once their course has been charted.

39. The careful programming, scale and continuity of a housing programme is essential if costs are to be kept low. It is unfortunate that few of the newly-developing countries have been able to programme far ahead in recent years because of the uncertainty surrounding the nature and amount of finance that would be available. Consequently construction has to take place in fits and starts, often with quite lengthy lulls in between. This is a hopeless state of affairs. Unless a considerable and assured building programme is before a housing team, economic bulk buying of materials is not possible and to buy in small amounts leads to higher costs. On the other hand, many bulk-ordered materials perhaps may never be used if a specific house type ceases production or construction just stops for a year or two.

(6) In particular by the American designer Buckminster Fuller.

Stored materials often deteriorate and are very likely to where storage facilities are of a primitive nature.

40. House maintenance charges are an oft neglected aspect of housing costs. Conservation and preservation are not instinctive to all peoples. Many are not maintenance conscious. However in government-built housing programmes maintenance becomes an important cost element. Failure to maintain can perhaps result in slum to slum in one decade.

Aided Self-Help Housing

41. The provision of suitable housing by sophisticated processes is still a long way off for the families of the newly-developing countries. Alternative and parallel methods have had to be explored. The improvement of existing houses and of the traditional means of building them has been widely studied. Yet in relation to the needs and possibilities little has been achieved.

42. Semi-permanent housing (based upon improved traditional building techniques and designs) when conceived as part and parcel of community and regional development plans can prove acceptable until such time as a local economy develops to a point where more permanent dwellings become a possibility. In areas where energy and/or funds are in most desperately short supply the available resources are best perhaps not spent upon houses as such but upon water supplies and improved sanitation.

43. Aided self-help is the name given to the technique whereby families are assisted technically, organisationally and financially to build or complete a basic house themselves for themselves. Properly related to agricultural and community projects it is a very useful technique and has a part to play in almost every country's housing situation. To date however the aided self-help technique has been rather "oversold" at the housing policy level and somewhat "undersold" at the level of the villagers, the potential self-builders, themselves. So convinced can some organisations get that self-help is the answer to their areas's housing problem that the whole apparatus of advisers, technical training teams, materials purchasing and supervisors may get quite out of hand and grow out of all proportion in the pursuit of the "myth" of self-help. Where professional help and organising ability and finance is available on a large scale it would seem wiser to devote most of it to the development of a true housebuilding industry and to the training of full-time building workers.

44. In spite of the difficulty surrounding the use of the aided self-help technique this remains the one method that, suitably adapted to local needs and circumstances, will be available for the majority of people in the less developed regions of obtaining a better home in the not too distant future.

The Role of Housing in Economic Development Programmes

45. Although perhaps a majority of the newly-developing countries have recognised the need for economic planning relatively few have recognised the equal importance of sifting out and planning economic activities on the ground in relation to population movements, social developments health and educational programmes. The fact that economic activity may cause social distress, slum growth and even perhaps political unrest seems to be regarded as quite beyond anyone's foreseeing. However social and environmental improvement do not necessarily follow upon economic growth. Growth activity

has to be harnessed to the social scene to form a creative dynamic if the avowed intent of economic development is to be realised - the betterment of the lot of the mass of the people.

46. Economic activity if it is to serve people effectively needs organising at the level where it is happening: on the "floor" of regions. A new house in a developing country may then become a social and economic asset to the country as a whole when conceived as part of the wider plan for the development of a whole living region. A house and the settlement pattern of which it is part are one. The settlement pattern both reflects and helps to form the social and economic pattern.

Housing in a Developing Region

47. A satisfying family home for all is one of the ultimate objectives of economic development. Once the spiralling, interacting relationship between development activity; population growth and movement; cultural change and the transformation of the environment is grasped then it is seen that together with investment in agriculture, industry and engineering works provision has to be made in parallel for roads of all classes, village improvement, the build-up of rural centres, towns, cities, schools, technical colleges and housing. A new habitat has to be constructed. The form the housing takes; the form the settlement pattern takes; the peoples of the newly-evolving countries will determine: either by default or by design.

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